# TAXONOMIC REVISION OF THE GENUS METANOMEUTA MEYRICK (LEPIDOPTERA, YPONOMEUTIDAE, YPONOMEUTINAE)

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**Abstract** The genus *Metanomeuta* Meyrick is reviewed in the present paper. The type species *M. fulvirinis* is redescribed with a discussion on its morphological variations. Two new species, *M. yuexiensis* sp. nov. and *M. spinisparsula* sp. nov. are described from China. Images of the adults and the genitalia are provided. Keys to distinguish the three described species are given, and a distribution map is included.

Key words Lepidoptera, Yponomeutidae, Metanomeuta, new species.

### Introduction

The genus *Metanomeuta* Meyrick was erected in 1935 to accommodate two species, *M. fulviorinis* Meyrick and *M. zonoceros* Meyrick, from China. Clarke (1965) designated *M. fulviorinis* Meyrick as the type species of the genus, and regarded *M. zonoceros* Meyrick as a synonym of *M. fulviorinis* Meyrick. To date, *M. fulviorinis* is the only valid species of the genus, widely distributed in southern China (Yu & Li, 2001 & 2002; Li *et al.*, 2005; Li, 2006) (Fig. 1) and also reported to occur in Japan (Moriuti, 1977).

The aim of the present paper is to review the genus and add two new species to the world fauna. Terminology follows Moriuti (1977), and methods of genitalia dissection followed Li and Zheng (1996). The types and other examined specimens are deposited in the Insect Collection, College of Life Sciences, Nankai University, Tianjin, China.

## Taxonomy

## Genus Metanomeuta Meyrick, 1935

Metanomeuta Meyrick, 1935: 87.

Type species: *Metanomauta fulviorinis* Meyrick, 1935, by subsequent designation.

Generic characters. Head with appressed scales on frons, tufted between antenna. Antenna ciliate; scape short, with pecten; flagellum distally paler in male, silvery white in female. Labial palpus obliquely ascending third segment about equal to length of second, tip-pointed. Forewing narrowly lanceolate; all veins separated (Fig. 5),  $R_{\rm l}$  from middle,  $R_{\rm l}$  to termen,  $M_{\rm l}$  + CuA<sub>l</sub> from angle, pterostigma developed. Hindwing narrow, pointed at apex; Sc + R<sub>l</sub> reaching costa before middle, M<sub>l</sub> and M<sub>2</sub> distantly spaced, M<sub>3</sub> and CuA<sub>l</sub> coincident; with a hyaline space beneath cell on

basal 1/2 of cell.

Male genitalia. Uncus a broad plate. Socius elongate, pointed and hooked at apex. Tuba analis membranous. Gnathos rounded or tongue shaped, granular. Valva broadly triangular; sacculus with a sharp thorn at apex and with many small teeth or thorns along ventral margin; transtilla long and sclerotized. Saccus elongate, nearly parallel sided to rounded apex. Aedeagus with two rows of fine teeth from basal 2/5 or from middle to about distal 1/4; cornuti a cluster of many fine spines.

Female genitalia. Papillae analis rather short. Apophyses posteriores longer than apophyses anteriores; apophyses anteriores basally branched. Lamella postvaginalis produced into a pair of rounded and hairy caudal processes; lamella antevaginalis a sclerotized transverse plate. Ostium bursae large and rounded. Antrum short cup shaped. Ductus bursae membranous, shorter than or longer than corpus bursae, densely granulate except for a short portion between antrum and inception of ductus seminalis. Corpus bursae broadly or narrowly elongate; signum absent.

Remarks. *Metanomata* is characterized by the antenna with distal flagellar segments slightly paler in male but silvery white in female, the hindwing with a hyaline space beneath cell on basal 1/2 of cell, the sacculus in male with a distinct apical thorn and many small teeth or thorns along ventral margin; and the corpus bursae in female without signum. It is distributed in China and Japan.

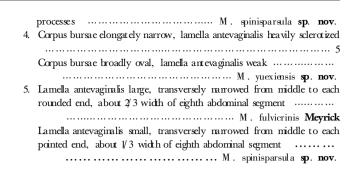
#### Key to species of Metanomeuta based on external characters

- Forewing black, without any markings ... M. spinisparsula sp. nov.
   Forewing light to dark brown or grayish brown, with markings ...... 2

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	middle of cell and with dim grayish white spot near apex
	M . yuexiensis sp. nov.
K	ey to species of Metanomeuta based on genitalia
1.	Male 2
	Female 4
2.	Gnathos irregularly rounded, socius relatively stout
	Gnathos elongate, torque shaped, socius slightly slender
3.	Saccus slightly narrowed anteriorly; gnathos rounded apically, entirely
	covered with large granular processes M . yuexiensis sp. nov.
	Saccus parallel sided; gnathos narrowly pointed apically, basal 1/3 with



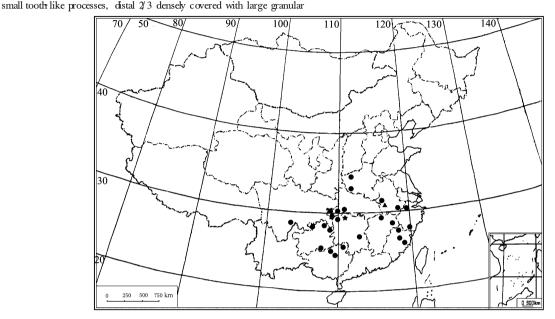


Fig 1. Distribution map of *Matanomeuta* spp. in China.  $\bullet$  *M*. fulvioinis Meyrick.  $\blacktriangle$  *M*. yuexionis sp. nov.  $\star$  *M*. spinisparsula sp. nov.

Metanomeuta fulvicrinis **Meyrick**, **1935** (Figs. 2, 5-9, 12)

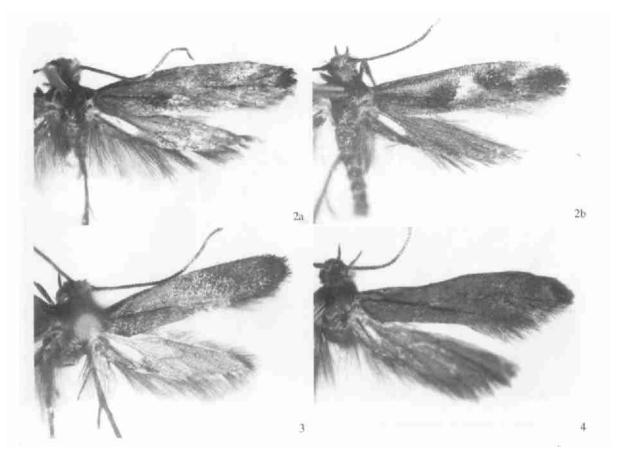
Metanomeuta fukicinis Meyrick, 1935: 87; Friese, 1962: 323; Clarke, 1965: 348; Moriuti, 1977: 236.

Metanomeuta zon ceros Meyrick, 1935: 88; Clarke, 1965: 348.

Redescription. Adult (Fig. 2). Wing expanse 11.0 15.0 mm. Head rough, with white, whitish yellow, or pale brown scales; from s from light yellow to brown, with metallic gloss. Antenna light brown, becoming grayish white from basal 1/2 to distal 1/6 in some male individuals, white from middle to distal 1/6 in female. Labial pulpus dark brown. Thorax grayish brown to dark brown. Tegula dark brown. Forewing in male light brown to dark brown, with dark brown or black spot at basal 1/4; forewing in female dark brown, with large black spot at middle and end of cell respectively, sometimes indistinct, with a grayish white spot between the two, or with a narrow, slightly oblique white stripe beside the former black spot, in some individuals dim small white spot placed at distal 1/5; cilia concolourous with forewing. Hindwing slightly paler than forewing; cilia darker than the wing. Legs dark brown, tarsi light brown to grayish white. Abdomen yellowish brown on ventral surface, dark brown on dorsal surface.

Male genitalia (Fig. 9). Socius with basal half nearly parallele sided, gradually narrowed in distal half, or gradually narrowed from base to apex, hooked apically. Gnathos round, irregularly rounded or short tongue shaped. Valva usually broad at base, gradually narrowed toward apex, ventral margin obviously concave inward at base in some individuals. Sacculus short, broad or narrow, with an obvious conical spine apically, densely or sparsely covered with small thorns along ventral margin, the thorns forming a sclerotized spinose plate in some individuals. Saccus slender, slightly narrowed at anterior 2/5, or gradually narrowed from base to apex. Aedeagus slender, about 1.5-2.0 times as long as valva, weakly sclerotized; cornuti composed of a cluster of many small spines ranging from basal 2/5 to 4/5.

Female genitalia (Fig. 12). Papillae analis densely covered with small spines. Lamella postvaginalis deeply concave at middle on posterior margin and produced into a pair of rounded processes, or slightly concave at middle on posterior margin and protruding posterolaterally; lamella antevaginalis arched inward posteriorly, narrowed from middle to each rounded end, large, about 2/3 width of eighth abdominal segment. Ostium bursae small and round. Ductus bursae slender, membranous,



Figs 2-4. Adults of *Metanomeuta* spp. 2. *M. fulsi ainis* Meyrick. 2a. Male. 2b. Female. 3. *M. yuexiansis* sp. nov., holotype. 4. *M. spinisparsula* sp. nov., holotype.

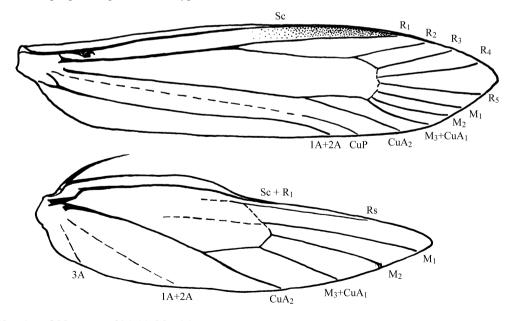


Fig 5. Venation of Metanomeuta fulvirinis Meyrick.

densely granulate from near base to 1/4, or from near base to middle. Corpus bursae elongate, or dilate distally sometimes, about twice length of ductus bursae, slightly wider than ductus bursae.

Material examed. 13  $^{\circ}$  5,  $^{\circ}$  2  $^{\circ}$  9, Shimen County (27°34′ N, 110°01′ E), Hunan Province, alt.

504 m, 4 May 2002, coll. YU Hair Li; 19 & & & Xinhua County (27°44′ N, 111°18′ E), Hunan Province, 4 10 Aug. 2004, coll. XIAO Yurr Li; 23 & & Sangzhi County (29°23′ N, 110°11′ E), Hunan Province, alt. 1 250 m, 12-14 Aug. 2001, coll. LI Hour Hun and WANG Xirr Pu; 2 & & & , 2 & & ,

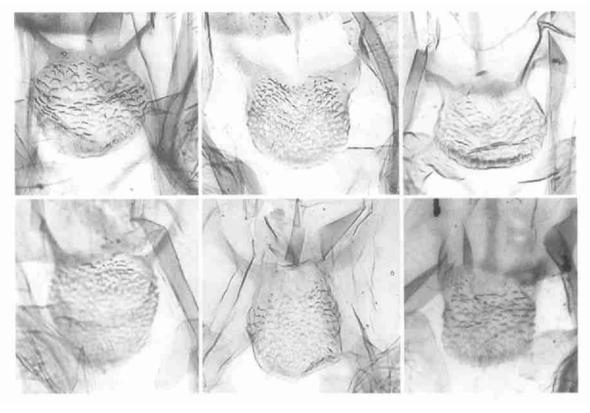


Fig 6. Variation of gnathos in Metanomeuta fulviorinis Meyrick.

Neixiang County (30°02′ N, 111°50′E), Henan Province, alt. 1350 m, 12-14 July 1998, coll. LI Hour Hun; 24  $\delta$   $\delta$ , Neixiang County (  $30^{\circ}02^{\circ}N$ ,  $111^{\circ}50^{\circ}E$ ), Henan Province, alt. 1200 m, 23 May-4 June 2006, coll. LV Jin Mei and ZHANG Xu; 9 & & Mt. Baiyun (34°08′ N, 112°05′ E), Henan Province, alt. 1580 m, 18-24 July 2002, coll. WANG Xin Pu; 1 º, Lushi County (34°03′ N, 111°02′ E), Henan Province, alt. 1 700 m, 20 July 2001, cdl. ZHANG Dan Dan; 4 & & , Mt. Fanjing (27°41′ N, 108°50′ E), Guizhou Province, alt. 1 390 m, 28 29 May 2002, coll. WANG Xin Pu; 2 & & , Mt. Fanjing (27'41' N, 108'50' E), Guizhou Province, alt. 1 300 m, 2-3 Aug. 2001, coll. WANG Xin Pu; 2 & &, Mt. Fanjing (27°41' N, 108°50′ E), Guizhou Province, alt. 1 390 m, 28 29 May 2002, coll. WANG Xin Pu; 3 & &, Maolan  $(25^{\circ}24 \text{ N}, 107^{\circ}52 \text{ E})$ , Guizhou Province, 23 May 1998, coll. LIAO Qir Rong; 2 & &, Chishui County (28° 34 N, 105° 42′ E), Guizhou Province, 21-22 Sep. 2000, coll. YU Hair Li; 15 & å, 5 ♀ ♀, Yanhe County (28°33′ N, 108°30′ E), Guizhou Province, alt. 430 m, 5 10 June 2007, coll. DU Xi Cui; 10 5 5, Mt. Lu (29°33′ N, 115°58′ E), Jiangxi Province, 24 Apr. - 24 May 1978; 2 & &, Ciping (29° 42′ N, 116°26′ E), Jiangxi Province, 13, 18 Aug. 1978; 1 &, Tongmuling (29°42′ N, 116°26′ E), Jiangxi Province, 28 June 1978; 9 & &, Shangrao County (28°26′ N, 117°54′ E), Jiangxi Province, 15·20 Apr. 2007, coll. DU Xir Cui and BAI Hair Yan; 1 & Mt. Maoer

(25° 37′ N, 110° 40′ E), Guangxi Province, 19 Apr. 2002, coll. HAO Shur Lian and XUE Huair Jun; 1 & Huatan (30° 30′ N, 117° 15′ E), Guangxi Province, alt. 950 m, 8 Aug. 2006, coll. LI Wei-Chun; 1 & Mt. Yuanbao, Guangxi Province, alt. 950 m, 12 Aug. 2006, coll. LI Wei-Chun; 4 & &, Huangshan County (30°30′ N, 117°15′ E), Anhui Province, 7 Aug. 2004, coll. XU Jia-Sheng and ZHANG Jia Liang; 4 & & Huashan County (31°24′ N, 116°19′ E), Anhui Province, 7 Aug. 2004, coll. XU Jia Sheng and ZHANG Jia Liang:  $1^{\circ}$ , Mabian County ( $28^{\circ}51^{\circ}$ N,  $103^{\circ}31^{\prime}$ E), Sichuan Province, alt. 900 m, 12 Aug. 2004, coll. REN Ying Dang; 1 5, Wufeng County (30°12′ N, 116°40′E), Hubei Province, alt. 1100 m, 11 July 1999, coll. LI Hour Hun et al.; 1 & Hefeng County (29°53′ N, 110°02′ E), Hubei Province, alt. 1 260 m, 15 July 1999, coll. LI Hour Hun et al.; 1 5, Xianfeng County (29°40′ N, 109°08′ E), Hubei Province, alt. 1 280 m, 20 July 1999, coll. LI Hour Hun et al.; 1 & Xianfeng County (29 40 N, 109 08 E), Hubei Province, alt. 400 m, 24 July 1999, coll. LI Hou-Hun et al.; 1 & Lichuan City (30°18′ N, 108°56′ E), Hubei Province, alt. 1100 m, 11 July 1999, coll. LI Hour Hun et al.; 61  $\delta \delta$ ,  $4 \circ \circ$ , Mt. Wuyi (27°46′ N, 118°02′ E), Fujian Province, alt. 740 m, 17 Wuyi (27°46 N, 118°02 E), Fujian Province, alt. 1 100 m, 22-23 May 2004, coll. YU Hair Li; 1 ♀, Mt. Wuyi (27°46'N, 118°02'E), Fujian Province, alt.

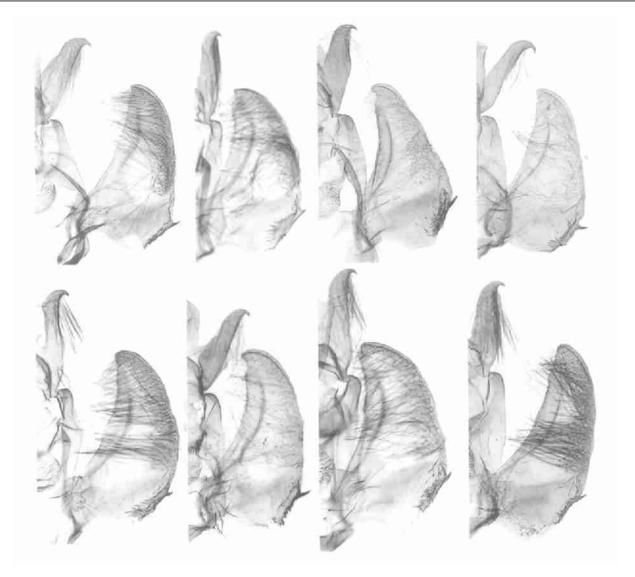


Fig 7. Variation of valva in Metanomeuta fulviciniis Meyrick.

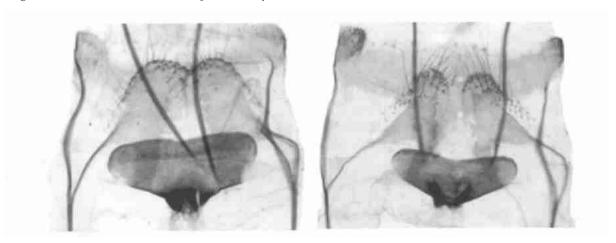
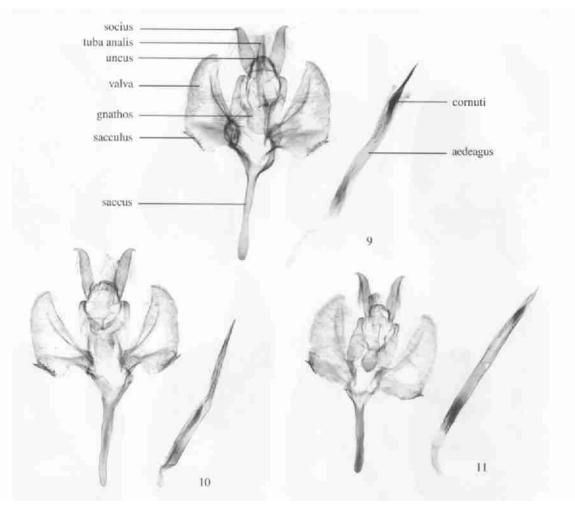


Fig 8. Variation of lamella ante and postvaginalis in Metanomeuta fulviciniis Meyrick.

600 m, 7 May 2004, coll. YU Hai Li; 5 & & Mt. Wuyi (27° 46′ N, 118°02′ E), Fujian Province, 3-4 Aug. 1988; 1 & Mt. Wuyi (27° 46′ N, 118° 02′ E), alt. 820 m, 30 Aug. 1988; 17 & & Nanping (26° 38′ N, 118° 10′ E), Fujian Province, 850 m, 22 Sep. 2002,

coll. WANG Xirr Pu; 27 & & Daozhen County (28 53 N, 107 36 E), Guizhou Province, alt. 820 1 420 m, 22-25 May 2004, cdl. HAO Shur Lian; 17 & & 4 & 2 , Taishun County (27 33 N, 119 42 E), Zhejiang Province, alt. 930 m, 29 July-4



Figs 9-11. Male genitalia of *Metanomeuta* spp. 9. *M. fulvicrinis* Meyrick (genitalia slide No. JQ07210). 10. *M. yuexiansis* sp. nov. (genitalia slide No. JQ07191). 11. *M. spinisparsula* sp. nov. (genitalia slide No. JQ06091)

Aug. 2005, coll. XIAO Yurr Li; 5 & & , Lin' an County (30°14′N, 119°43′E), Zhejiang Province, alt. 900 m, 8-11 Aug. 2005, coll. XIAO Yurr Li.

Distribution China (Anhui, Fujian, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangxi, Sichuan, Zhejiang); Japan.

Discussion. This species is widely distributed in Southern China. It is slightly varied in both superficial and genital characters. The variations include: the forewing with termen rounded or oblique, male and female different in color and markings; the gnathos varied from round to short tongue shaped (Fig. 6), the valva with the thorns along ventral margin of the sacculus forming either a sclerotized edge or a narrow plate in the male genitalia (Fig. 7); and the post and antevaginalis slightly varied in the female genitalia (Fig. 8). These variations sometimes exist in the individuals from the same locality.

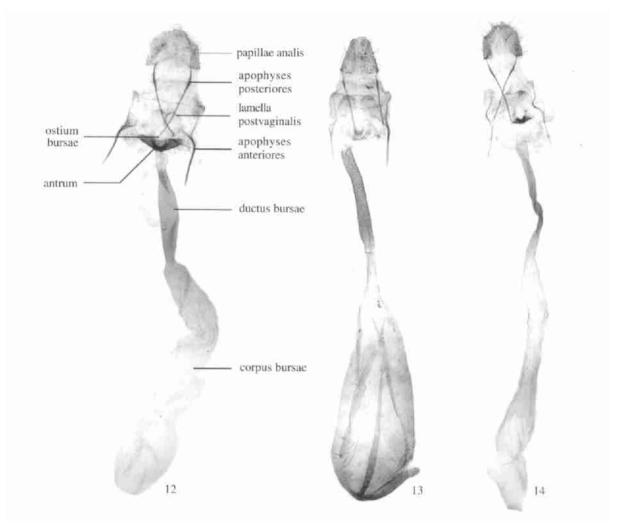
Metanomeuta yuexiensis sp. nov. (Figs 3, 10, 13)

Adult (Fig. 3). Wing expanse 12-14 mm. Head with frons brown; vertex grayish white or light yellowish brown, tinged with brown in female. Antenna grayish

brown or dark brown, becoming grayish white from basal 1/2 to near apex. Labial pulpus dark brown, tinged with grayish white in female. Thorax and tegula dark brown. Forewing grayish brown, in some individuals with dim spot at middle of cell and with dim grayish white spot near apex; cilia light brown. Legs grayish brown, spurs light brown or grayish white. Abdomen brown.

Male genitalia (Fig. 10). Socius with distal portion slightly broader than basal portion, acute and hooked apically. Gnathos elongately oval, bluntly rounded at apex. Valva triangular, bluntly rounded apically; transtilla somewhat triangular. Sacculus with apical thorn large and acute, ventral margin densely covered with large and small thorns, with scattered small denticles above. Saccus broad at base, anteriorly narrowed to apex. Aedeagus long and slender, about twice length of valva; cornuti a cluster of many small spines, about 1/5 length of aedeagus.

Female genitalia (Fig. 13). Lamella postvaginalis broad, weakly sclerotized, slightly concave on posterior margin at middle, protruding posterolaterally; lamella antevaginalis weak, granulate. Ostium bursae small,



Figs 12 14. Female genitalia of *Metanomeuta* spp. 12. *M. fulvicinis* Meyrick (genitalia slide No. JQ06097). 13. *M. yu exiensis* sp. nov. (genitalia slide No. JQ06091). 14. *M. spinisparsula* sp. nov. (genitalia slide No. JQ07186).

unconspicuous. Ductus bursae with basal 2/3 densely granulate except the proximal part, nearly parallel sided. Corpus bursae membranous, large, broadly oval, slightly broadened anteriorly, nearly equal to length of ductus bursae.

Holotype  $^{\circ}$ , China, Yuexi County ( $30^{\circ}52^{\prime}$  N,  $116^{\circ}22^{\prime}$  E), Anhui Provoince, 8 Aug. 1995, coll. HU Xiang-Fu, genitalia slide JQ07191. Paratypes: 8  $^{\circ}$   $^{\circ}$ , 1  $^{\circ}$ , 25 July 22 Aug. 1995, other same data as holotype.

Diagnosis. Superficially this new species is close to *M. fulvirinis* Meyrick, but can be differentiated from it by the male gnathos elongately oval; female lamella antevaginalis weak and corpus bursae broadly oval. This species can also be distinguished from *M. spinisparsula* sp. nov. by the gnathos bluntly rounded anteriorly, the sacculus with denser spines along ventral margin and the saccus narrowed anteriorly; the female is also differently shaped from the latter in the lamella antevaginalis and corpus bursae.

Etymology. The specific name is from the type locality.

Metanomeuta spinisparsula **sp. nov.** (Figs. 4, 11, 14)

Adult (Fig. 4). Wing expanse 16.0 mm. Body black, with faint metallic gloss. Head with rough scales on vertex, with appressed scales on frons. Antenna with flagellum in female silvery white from 47 to 67. Proboscis yellowish brown. Forewing without any markings. Hindwing light brown; cilia concolourous with wing. Spurs grayish white.

Male genitalia (Fig. 11). Uncus semicircular. Socius broad at base, slightly narrowed toward hooked apex. Gnathos tongue shaped, narrowly pointed anteriorly, its basal 1/3 covered with small tooth like processes, distal 2/3 densely covered with large granular processes. Valva triangular, bluntly rounded at apex; costa gently concave. Sacculus with a short and blunt apical thorn and a few sparse spines ventrally, unconspicuous along sclerotized ventral margin. Saccus a little shorter than valva, nearly parallel-sided, bluntly rounded apically. Aedeagus about 2.0 times length of valva; cornuti a cluster of many spines.

Female genitalia (Fig. 14). Lamella postvaginalis

broad, a little concave on posterior margin at middle; lamella antevaginalis small, being a sclerotized plate, transversely narrowed from middle to each pointed end, about 1/3 width of eighth abdominal segment. Ostium bursae longitudinally oval. Ductus bursae membranous, basal half densely granulate except the proximal part. Corpus bursae membranous, narrowly elongate, about twice length of corpus bursae, not distinctly separated from ductus bursae.

Holotype  $^{\circ}$ , China, Shimen County (29° 35′ N, 111°22′ E), Hunan Province, alt. 480 m, 5 May 2002, coll. YU Hai Li, genitalia slide JQ06091. Paratype 1  $^{\circ}$ , other same data as holotype.

Diagnosis. This new species can be separated from the only known species M. fulvicinis Meyrick by the body dark brown and wings without any markings; male gnathos tongue shaped and narrowly pointed anteriorly, sacculus without conspicuous spines or spinulous cluster; ductus bursae in female with basal half granulate.

Etymology. The specific name is derived from the Latin prefix *spin*- and the word *sparsulus*, referring to the sacculus with sparse spines ventrally.

Acknowledgements We are grateful to Professor II Hour Hun for reading the manuscript and giving valuable advice, and to Dr. YU Hai Li for making some slides and identifying the species *Metanomata fulviornis* Meyrick.

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## 褐巢蛾属分类修订 (鳞翅目,巢蛾科,巢蛾亚科)

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摘要对褐巢蛾属 Metanomeuta Meyrick 进行了修订,重新描述了模式种,讨论了其形态变异;记述 2 个新种,即岳西褐巢蛾 Metanomeuta yuexiensis sp. nov. 和疏刺褐巢蛾 Metanomeuta spinisparsula sp. nov.。文中提供了成虫和外生殖器特征图,给出了分种检索表及分布图。模式标本保存在南开大学昆虫标本室。

岳西褐巢蛾,新种 M etanomeuta yu exiensis **sp. nov.** (图 3, 10, 13)

该种与金冠褐巢蛾 Matanomeuta fulviorinis Meyrick 外部相似,但可通过外生殖器特征区别: 颚形突卵圆形,未端钝圆; 雌性后阴片中部微凹,前阴片不明显,囊导管基部 2/3 具瘤突,交配囊长卵形。

正模 å, 安徽岳西温泉(30°52′N, 116°22′E), 1995 08 08,

关键词 鳞翅目,巢蛾科,褐巢蛾属,新种. 中图分类号 Q269. 426. 1 Microlepidoptera in the British Museum (Natural History) described by Edward Meyrick V. The Trustees of the British Museum. 1-581, London

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疏刺褐巢蛾,新种 Metanomeuta spinisparsula **sp. nov.** (图 4, 11 14)

该种与金冠褐巢蛾 Metanoneuta fulviorinis Meyrick 相似,区别在于:体为深褐色,翅面无任何斑纹;雄性颚形突略呈舌状,末端突出,抱器腹除端部有一枚较大刺突外,无明显小刺或小刺束;雌性导管端片小且非杯状,囊导管仅基部 1/2 具瘤突。

正模  $\,$  5, 湖南石门县 壶瓶山江坪(29°35′N, 111°22′E; 480 m), 2002 01-05, 于海丽采, 外生殖器玻片号 JQ06091; 副模 $1^\circ$ , 采集资料同正模。

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